

2,051,428

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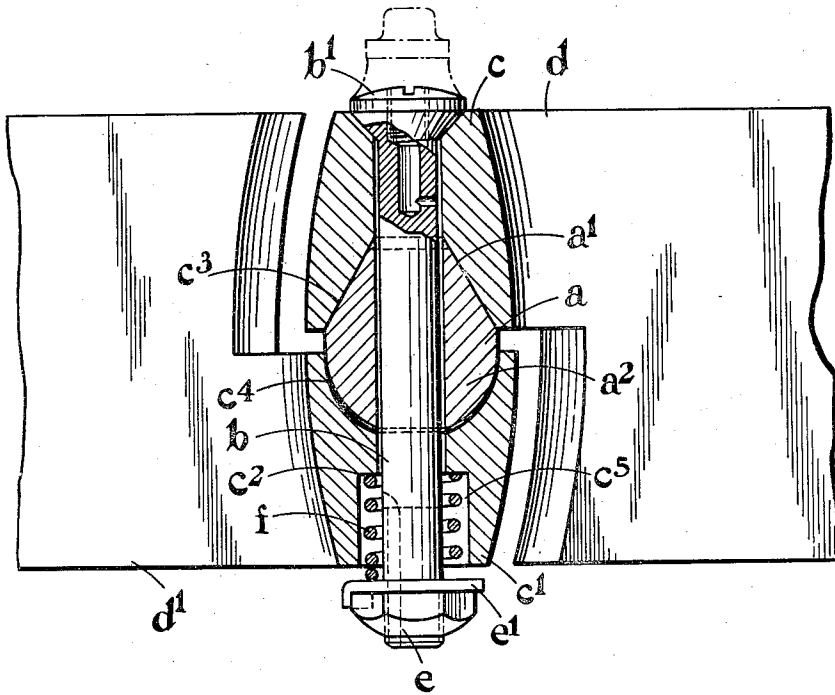


Fig. 1.

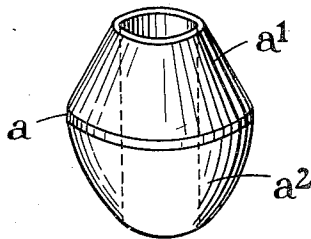


Fig. 2.

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HINGE

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3 Claims. (Cl. 16—140)

This invention relates to hinges of the type in which a bearing member is arranged on the hinge pin between the two hinge members.

Where, as has been proposed, the bearing member is of full spherical form it is difficult to avoid a certain amount of lateral play between it and the hinge members if the latter are to work freely, and quietly, especially when, in consequence of a defect in the hanging of the door or of deformation of the door pillars, one member of the hinge has to adjust itself accordingly.

The object of the present invention is to provide an improved construction of hinge in which the relatively movable member of the hinge can turn freely upon the bearing member without side play and in such a manner that wear between them is automatically taken up, while at the same time the said bearing member is free to move in the fixed hinge member to allow the door to adjust itself in a universal manner to compensate for any misalignment of the hinges or deformation of the door pillars.

A hinge of the kind herein referred to embodying the present invention is characterized in that the bearing member is of conical formation at one end and of hemi-spherical shape at the other, the geometrical centre of the hemi-spherical part lying in the axis of the cone.

In the accompanying drawing,
Figure 1 is a sectional view of a hinge embodying the present invention.

Figure 2 is a detail perspective view of the improved bearing member.

Referring to the drawing, *a* represents the improved bearing member which, as shown in Figure 1, is loosely arranged on the hinge pin *b* between the usual lugs *c*, *c'* formed on the movable and fixed hinge plates *d*, *d'* respectively.

As will be seen, the upper part *a'* of the bearing member is of conical formation and is adapted to provide a self-adjusting bearing for the movable hinge plate *d* carrying the door, a correspondingly formed recess *c'* being formed in the underside of the lug *c* to accommodate this part of the bearing member. A suitable angle for the cone would be about 60° as this will provide an adequate bearing surface for a given lug diameter without risk of the bearing having any tendency to bind.

The lower part *a''* of the bearing member is of hemi-spherical formation and has a loose seating in a correspondingly formed recess *c'*, in the upper end of the lug *c'* of the fixed hinge plate *d'*.

The base of the conical part *a'* of the bearing member may be of approximately the same di-

ameter as the hemi-spherical part *a''*, the two parts being co-axially arranged with respect to each other and to the hinge pin *b*.

When the hinge is in use the movable member *d* can turn freely upon the conical portion *a'* of the bearing member without side play while at the same time the bearing member itself is free to move in any direction in its seating in the fixed member *c'* to allow the door to adjust itself in a universal manner to compensate for misalignment of the hinges or deformation of the door pillars.

Instead of mounting the bearing member loosely on the hinge pin, as shown, it may be fixed to or formed as a part thereof in which case sufficient clearance will be provided between the pin and the holes in the lugs *c*, *c'* to allow the bearing member to move freely in its seating in the fixed hinge plate. A coiled compression spring *f* is preferably housed in a recess *c''* in the lower part of the lug *c'* to take up wear between the relatively movable parts of the hinge, said spring bearing at one end against a shoulder *c'* in said recess and at the other end against the washer *e'* of a retaining nut *e* on the hinge pin.

The said pin is preferably formed with a conical head *b'* which takes a seating in the upper end of the lug *c*. The said head may, as shown in dotted lines, be formed as a nipple to receive lubricant from a grease gun.

The bearing member itself can be made of any suitable material, such as steel, brass or self-lubricating material, while the hinge plates can be made from strip or bar steel of any suitable section, or of malleable iron, brass or any other appropriate metal or alloy.

I claim:—

1. A hinge comprising a fixed hinge member and a relatively movable hinge member, said members having co-axially arranged knuckles, the inner end of the knuckle on said relatively movable member having a conical recess and the opposed inner end of the knuckle of the fixed member having a semi-spherical seat, in combination with a bearing member having a conical portion adapted to engage said conical recess and a hemi-spherical portion adapted to take a bearing in the semi-spherical seat, and a pivot pin passing through said knuckles and bearing member.

2. A hinge comprising a fixed hinge member and a relatively movable hinge member having co-axially arranged perforated knuckles, of which the knuckle of the relatively movable member has a conical recess in its inner end and

the opposed end of the knuckle of the fixed member having a semi-spherical recess, a pivot pin passing through said knuckles, a bearing member arranged upon said pin between said 5 knuckles and having a conical portion adapted to engage the said conical recess and to provide a bearing for said relatively movable member and a hemi-spherical portion adapted to take a seating in the semi-spherical recess of said fixed 10 member and means adapted automatically to take up wear between the hinge knuckles and bearing member.

3. A hinge comprising a fixed hinge member and a relatively movable hinge member, said 15 members having coaxially arranged perforated knuckles, the inner end of the knuckle of said relatively movable member having a conical recess concentric with its perforation and the opposed inner end of the knuckle of the fixed 20 member having a hemi-spherical recess concen-

tric with its perforation, in combination with a pintle extending through said perforations for connecting said knuckles, and a centrally bored bearing element disposed about said pintle between said knuckles and having a conical portion received in said conical recess and about 5 which the knuckle of the movable member may have partial rotation and being formed with a hemi-spherical portion seated in the opposed 10 hemi-spherical recess of the knuckle of said fixed member for universal turning movement therein to adjust the position of said bearing element with relation to said fixed member as may be 15 necessary, the internal diameter of the bore of said bearing element being appreciably in excess of the greatest cross-sectional dimension of that portion of said pintle normally disposed in said bore.

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